

Please amend the claims as indicated below:

1. (Currently amended) A wire-bonding apparatus for forming electrical connections between a semiconductor chip and a lead frame, comprising:
a plurality of bond-heads;
a plurality of work holders, each associated with a respective one of the bond-heads, and configured
to support a lead frame in an operative relation to the associated bond-head,
the bond heads and the work holders being assembled into a single integrated structure; and
a controller which is programmable to operate each bond-head of the apparatus independently to
perform bonding of wires between a semiconductor chip and a leadframe simultaneously
with the other bond-heads but without synchronization of movement between the bond-
heads.
2. (Original) A wire-bonding apparatus according to claim 1, which includes a gap between the
work holders on the apparatus to isolate each work holder from the vibration of another work holder.
3. (Original) A wire-bonding apparatus according to claim 2, wherein each work holder rests on a
base separated from other bases by a gap and each separate base rests on a common lower chassis,
the each separate base being separated from the common lower chassis by a vibration-insulating
material.
4. (Original) A wire-bonding apparatus according to claim 1, wherein each work holder includes
a track on which a leadframe is slideable, and an indexer adjacent the track to grip and position the
leadframe relative to each associated bond-head and to slide the leadframe across each work holder.
5. (Previously Presented) A wire-bonding apparatus according to claim 1, including a storage device
in which leadframes are storable and which is operatively connected with the apparatus to
automatically provide leadframes to the workholder and/or to automatically receive
leadframes that have been processed.

6. (Original) A wire-bonding apparatus according to claim 1, including a transportation system comprising a line transporter having rollers that move the leadframes along their designated direction of travel.
7. (Original) A wire-bonding apparatus according to claim 6, which includes a transport arm for lifting a leadframe away from the line transporter to a designated location such that the leadframe is substantially adjacent the work holder, for transfer to the work holder.
8. (Original) A wire-bonding apparatus according to claim 6, wherein the transportation system is capable of transporting a leadframe to each work holder for processing and of transporting each processed leadframe away from a work holder without passing through another work holder.
9. (Original) A wire-bonding apparatus according to claim 7, wherein each transport arm allows bi-directional movement of leadframes away from and/or towards the line transporter.
10. (Previously Presented) A wire-bonding apparatus according to claim 1, which includes a cardcage for storing electrical and/or electronic components of the controller and devices to drive mechanical components of the apparatus.
11. (Original) A wire-bonding apparatus according to claim 10, wherein each bond-head is controlled by a separate controller board housed in the cardcage.
12. (Original) A wire-bonding apparatus according to claim 11, wherein each controller board includes a heat-sink.
13. (Original) A wire-bonding apparatus according to claim 10, wherein the cardcage includes cooler fans to lower the temperature inside the cardcage.
14. (Previously Presented) A wire-bonding apparatus according to claim 1, wherein the controller is programmable to operate the plurality of bond-heads to simultaneously perform bonding of wires of different types.

15. (Previously Presented) A wire-bonding apparatus according to claim 14, wherein the different types of wires include gold wires and copper wires.

16. (Previously Presented) A wire-bonding apparatus according to claim 14, wherein the different types of wires include different wires of different diameters.

17. (Previously Presented) A wire-bonding apparatus according to claim 1, wherein the controller is programmable to operate different bond-heads to perform bonding according to different patterns simultaneously.

18. (Previously Presented) A wire-bonding apparatus according to claim 1, further including a structure operative to isolate each work holder from vibration of the other work holders.

19. (Previously Presented) A wire-bonding apparatus according to claim 1, each of the bonding-heads includes an ultrasonic transducer by which the bonding operations are performed.

20. (Previously Presented) A wire-bonding apparatus according to claim 19, wherein vibration isolation is provided by a gap between the work holders on the apparatus to isolate each work holder from the vibration of another work holder.

21. (Previously Presented) A wire bonding apparatus according to claim 19, wherein: each work holder rests on a separate base and each separate base rests on a common lower chassis, and

vibration isolation is achieved by the respective bases being separated from each other by a gap, and from the common lower chassis by a vibration-insulating material.

22. (Currently Amended) A wire-bonding apparatus for forming electrical connections between a semiconductor chip and a lead frame, comprising:

a plurality of bond-heads each including an ultrasonic transducer;

a plurality of work holders, each associated with a respective one of the bond-heads, and configured to support a lead frame in an operative relation to the associated bond-head,

the bond heads and the work holders being assembled into a single integrated structure; and

a controller which is programmable to operate each bond-head of the apparatus independently to perform bonding of wires between a semiconductor chip and a leadframe simultaneously with the other bond-heads but without synchronization of movement between the bond-heads.